

How to Stop Worrying and Love the QAPP*

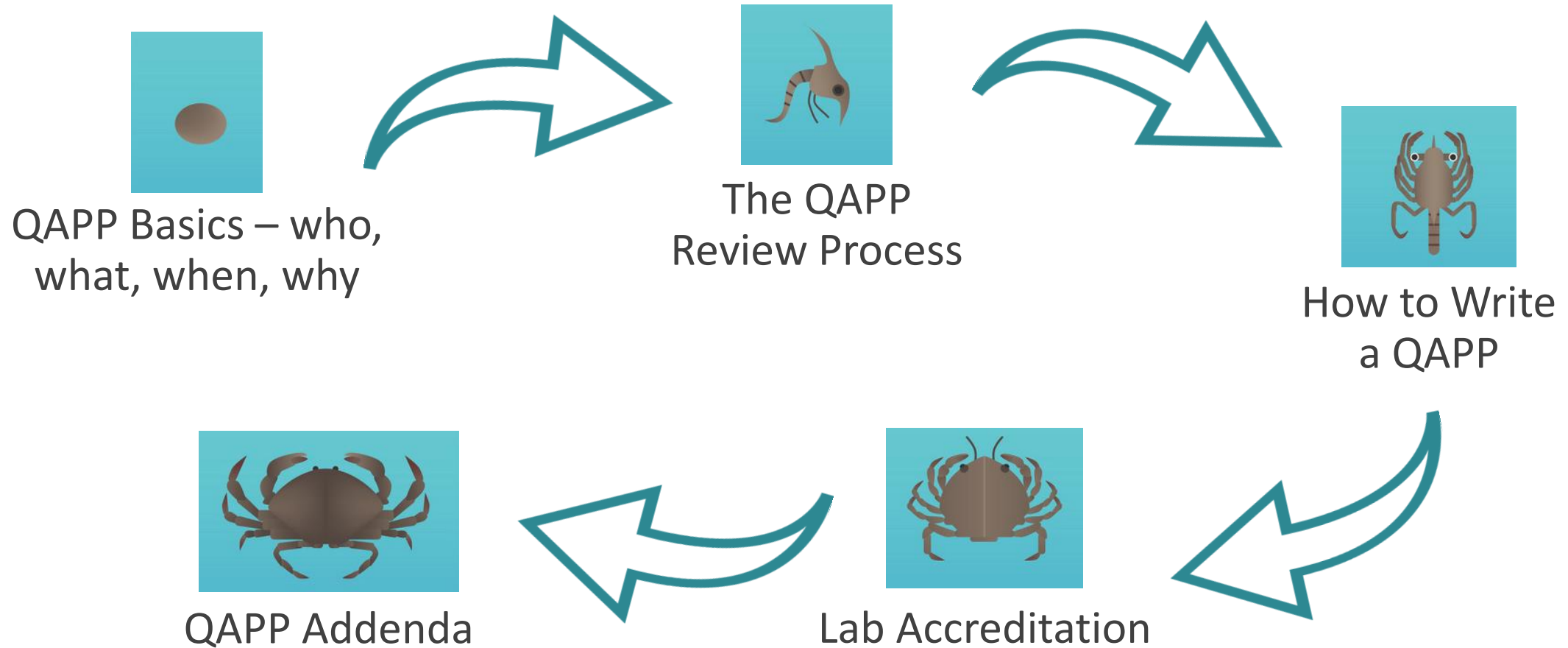
Webinar for NEP Projects

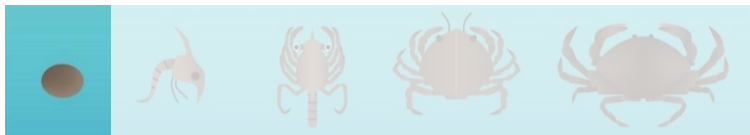
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*Quality Assurance Project Plan

Outline

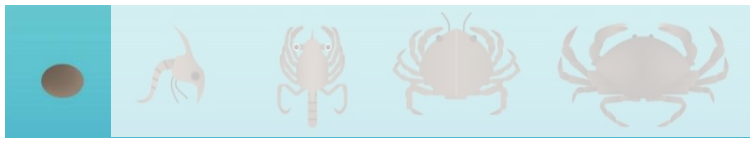




Why do I have to write a QAPP?

- National Estuary Program (NEP) projects are funded by the U.S. Environmental Protection Agency (EPA).
- All projects that collect or analyze data for the EPA must write a Quality Assurance Project Plan (QAPP).
- EPA's QA philosophy is a “graded approach”
 - The level of detail in each QAPP will vary according to the nature of the work being performed and the intended use of the data.
- A QAPP describes the **technical and quality activities** of an environmental data operations project that should be implemented to ensure that the results of the work performed will satisfy the data user's needs.





Why is it smart to write a QAPP?

- Document all roles and expectations
- Increase efficiency by reducing the chance of errors and the need to repeat work
- Increase reliability of decisions made with project results
- Increase credibility and defensibility of project results
- Save time writing reports and scientific papers





Who has to write a QAPP?

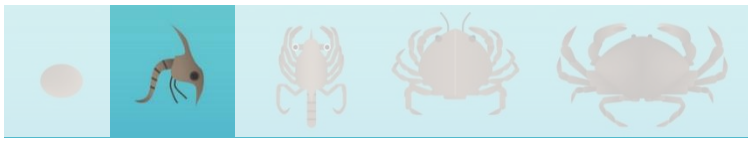
Does your project...

- Collect new environmental data?
- Analyze existing environmental data (including GIS data)?
- Model environmental conditions?

If you are not doing any of these activities, you may not need to write a QAPP. You must obtain written confirmation from your grant manager or the NEP Quality Coordinator that a QAPP is not required.

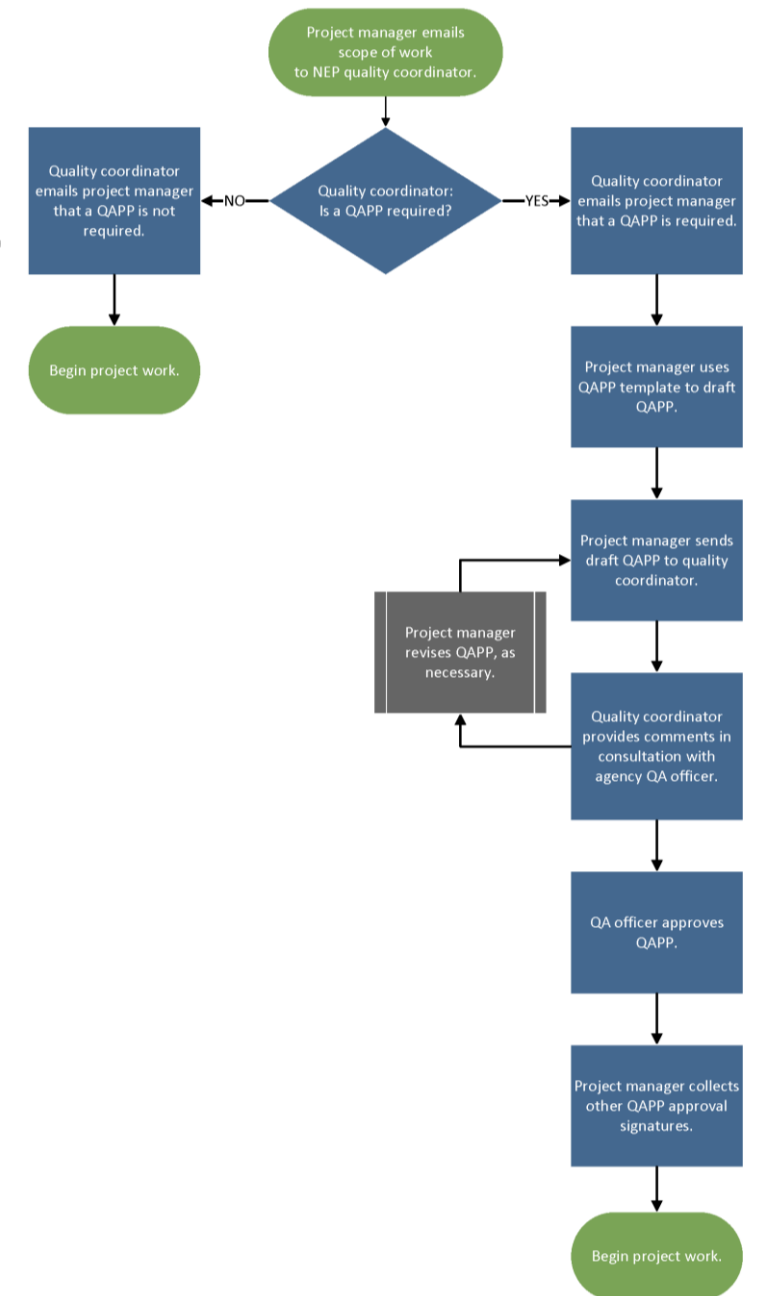
If you're not sure – ask me! (britta.voss@ecy.wa.gov)

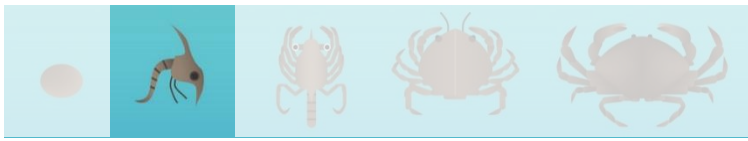




How do QAPPs get approved?

1. **Use the QAPP Template to draft your QAPP.**
2. **Send draft QAPP to the NEP Quality Coordinator.**
 - NEP Quality Coordinator reviews, provides feedback.
3. **Revise your QAPP as needed.**
 - Once finalized, the NEP Quality Coordinator recommends approval of your QAPP to the Ecology QA Officer.
 - NEP Quality Coordinator will notify you when your QAPP is signed by the Ecology QA Officer.
4. **Collect all remaining approval signatures.**
 - If significant changes are made after the Ecology QA Officer signs, you will need to obtain new approval signatures.
5. **Begin work on your project!**





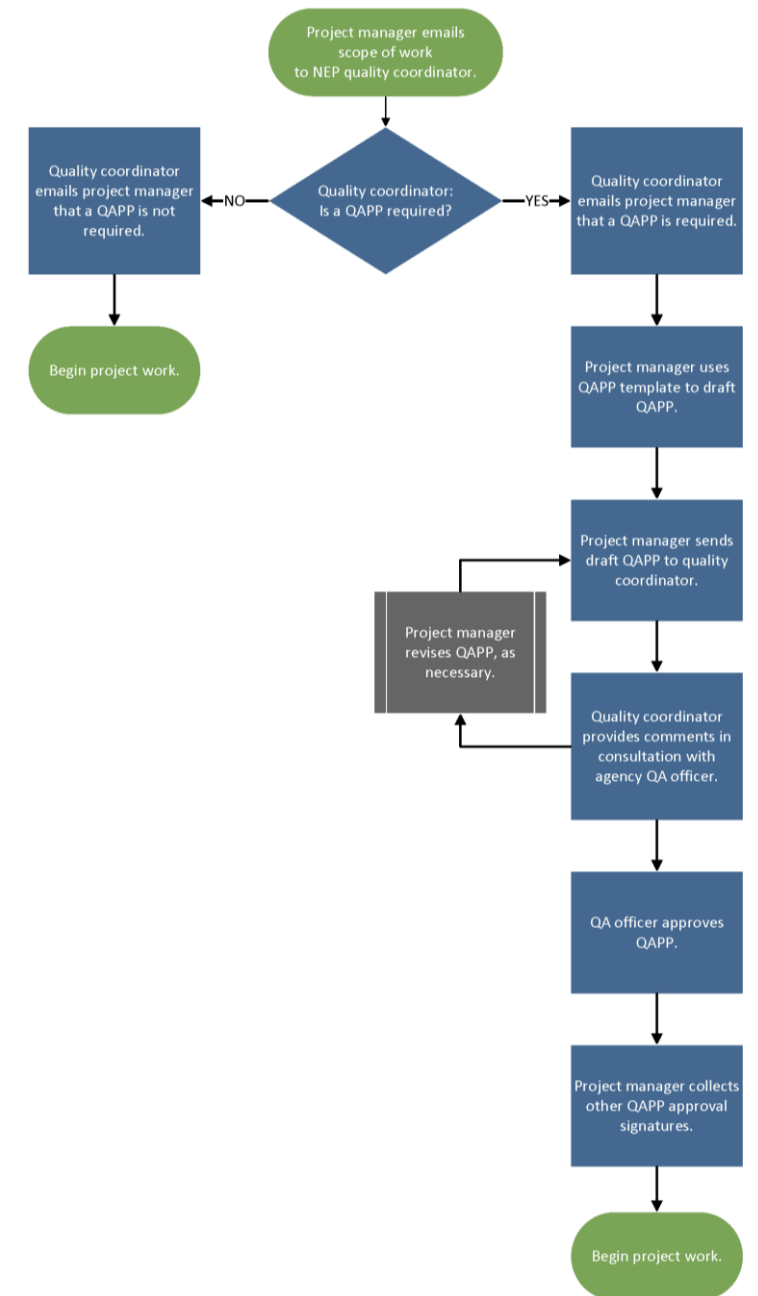
When do I write the QAPP?

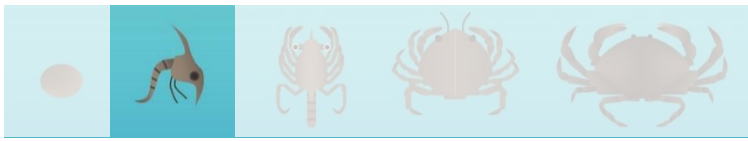
Your QAPP must be approved before you can begin any field, lab, or modeling work.

“Approval” means everyone on the signature page has signed:

- Author(s)
- Strategic Initiative grant manager
- Department of Ecology QA Officer
- Others with data responsibilities (contractors, labs, etc.)

First submitted draft QAPP → Approved QAPP can take a few weeks (or more). **Get the QAPP process started ASAP** – as soon as you are ready to discuss your project activities!

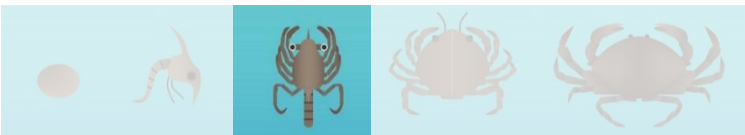




What does QAPP review accomplish?

- Provides QA and technical resources for project managers and Strategic Initiatives.
- Ensures QA consistency across Strategic Initiatives.
- Ensures projects meet key standards:
 - Are the plans accurate and complete?
 - Will sufficient data be collected using appropriate measurement and data acquisition methods?
 - Are the planned assessment procedures adequate to evaluate the project?
 - Is there a process to identify any limitations on the data use?



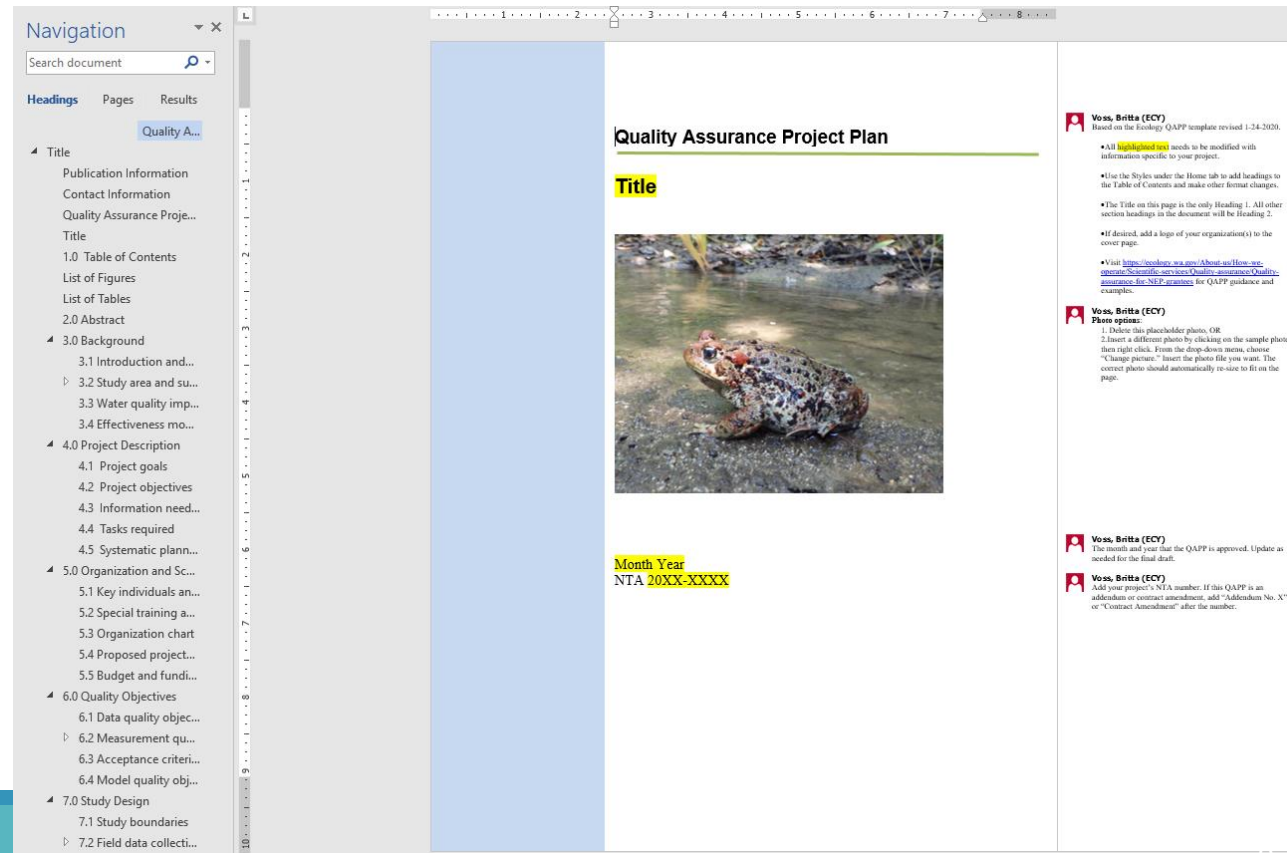


How do I write a QAPP?

Visit the NEP Quality Assurance website: <https://ecology.wa.gov/About-us/How-we-operate/Scientific-services/Quality-assurance/Quality-assurance-for-NEP-grantees>

- QAPP Template
- Example QAPPs
- Ecology SOPs
- Lab accreditation information

Use previous QAPPs and examples as a starting point!





What's in a QAPP?

- 1.0 Table of Contents
- 2.0 Abstract
- 3.0 Background
- 4.0 Project Description
- 5.0 Organization and Schedule
- 6.0 Quality Objectives
- 7.0 Study Design
- 8.0 Field Procedures
- 9.0 Laboratory Procedures
- 10.0 Quality Control Procedures
- 11.0 Data Management Procedures
- 12.0 Audits and Reports
- 13.0 Data Verification
- 14.0 Data Quality (Usability) Assessment
- 15.0 References
- 16.0 Appendices

Some sections may not be relevant to your project!



What's in a QAPP?

➤ **1.0 Table of Contents**

- A lists of all the elements, references, and appendices in a QAPP.
- Includes a list of tables and a list of figures.
- Relies on built-in heading and caption formatting!

➤ **2.0 Abstract**

- 300 words or less.
- Describe the purpose of the project and why it matters.
- List the main objectives and how they will be approached and accomplished.



What's in a QAPP?

➤ **3.0 Background**

- Provide historical and scientific perspective on the project and explain why the project is needed.

➤ **4.0 Project Description**

- Tell the “story” of the project.
- Define the problem and summarize the anticipated study outcomes.

➤ **5.0 Organization and Schedule**

- Describe who will be involved in the project, what their responsibilities will be, their relevant expertise and training, and a timeline for completing milestones for the overall project.



What's in a QAPP?

➤ 6.0 Quality Objectives

- Data Quality Objectives – brief narrative describing criteria for study success.
- Measurement Quality Objectives – quantitative criteria for precision, bias, and sensitivity.
- Acceptance criteria for quality of existing data – how will you screen data collected outside the project?
- Model Quality Objectives – quantitative criteria for bias, error, goodness-of-fit, and other measures of uncertainty; can also include narrative/qualitative criteria.

➤ 7.0 Study Design

- Describe key features of the study area in relation to the spatial and temporal distribution of data to be collected/modeled.
- Address underlying assumptions of the study approach and potential challenges.



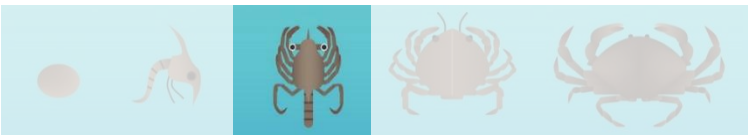
What's in a QAPP?

➤ 8.0 Field Procedures

- Sampling methods (SOPs) and equipment
- Containers, holding times, and preservation methods for lab samples
- Invasive species mitigation and equipment decontamination
- Chain of custody
- Field logs
- Other activities

➤ 9.0 Laboratory Procedures

- Sample preparation and analysis methods
- Expected range of results and reporting limits
- Special method requirements
- Lab accreditation



What's in a QAPP?

➤ 10.0 Quality Control Procedures

- Field QC: blanks, replicates
- Laboratory QC: standards, blanks, duplicates, spikes
- Corrective action processes

➤ 11.0 Data Management Procedures

- Data recording and reporting
- Laboratory data packages
- Model data management
- WQX data uploading – EPA requirement (<https://www.epa.gov/waterdata/water-quality-data-wqx>)

➤ 12.0 Audits and Reports

- Field and laboratory audits
- Responsible personnel
- Frequency, distribution, and responsibility of reports



What's in a QAPP?

- **13.0 Data Verification**
 - Field and laboratory verification activities
 - Data validation – independent external data review, usually not necessary
 - Model quality assessment – calibration, precision, bias, etc.
- **14.0 Data Quality (Usability) Assessment**
 - Describes how you will evaluate whether project objectives were met
 - Treatment of non-detects
 - Evaluation of sampling
 - Documentation of assessment
- **15.0 References**
- **16.0 Appendices**
 - SOPs, example forms, large tables
 - Glossaries and acronyms



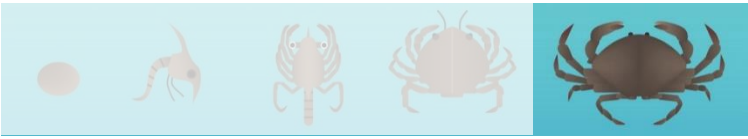
Why do I have to use an accredited lab?

- EPA requires documentation of competency to generate environmental data.
- Ecology is authorized to evaluate documentation of competency. Ecology policy requires environmental data to be generated by accredited labs.
 - NEP projects can use facilities accredited by Ecology's **Laboratory Accreditation Unit (LAU)** or other authoritative bodies (NELAC, ASTM, etc.).
 - Accreditation is specific to the Analyte, Matrix, and Method.
 - Matrix: non-potable water (environmental samples), drinking water, or solid material (incl. tissue).
- **Exceptions are rare and considered on a case-by-case basis.**
- Common parameters that require accreditation: Fecal coliform, *E. coli*, nutrients, chlorophyll, dissolved oxygen, DOC, TSS, metals, PAHs, pesticides, PCBs, ...



How do I find an accredited lab?

- Visit Ecology's LAU website: <https://apps.ecology.wa.gov/laboratorysearch/Default.aspx>
 - Search by lab name, analyte, matrix, or method.
 - Make sure the lab accepts outside samples!
- See if the lab you want to use has accreditation other than LAU, such as:
 - NELAC: <https://lams.nelac-institute.org/>
- Search for methods:
 - NEMI: <https://www.nemi.gov/>



QAPP Addenda

- If your project is making minor changes (new sampling sites, extended timeline, updated methods, etc.), you **MUST** write a QAPP Addendum.
 - Original QAPP is only valid for the activities and dates it includes.
- A QAPP Addendum only describes things that are new/different from the original QAPP. Omit anything that is unchanged from the original QAPP.
- The QAPP Addendum must be approved **before** you start the new project activities.
- If the original QAPP is five years old, a new QAPP is required.
- Don't guess whether a QAPP Addendum is appropriate for your project – contact the NEP Quality Coordinator!



Questions?

➤ **Britta Voss, NEP Quality Coordinator**

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360-407-6070 (office)

360-280-4305 (mobile)

➤ **NEP Quality Assurance Website**

<https://ecology.wa.gov/About-us/How-we-operate/Scientific-services/Quality-assurance/Quality-assurance-for-NEP-grantees>